

Intel[®] True Scale Fabric Suite Software

Release Notes

July 2015



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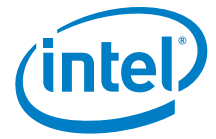
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Contents

1.0 Overview of the Release	9
1.1 Introduction	9
1.2 Audience	9
1.3 If You Need Help	9
1.4 New Features and Enhancements	9
1.4.1 Release 7.4.0.0.21 Enhancements	9
1.4.2 Release 7.3.1.0.12 Enhancements	10
1.5 Operating Environments Supported	11
1.6 Qualified Parallel File Systems	12
1.7 Intel Interface for NVIDIA* GPUs	12
1.8 Compilers Supported	12
1.8.1 MPI	12
1.8.2 MVAPICH, MVAPICH2 and Open MPI	13
1.9 Hardware Supported	14
1.10 Software Supported	14
1.10.1 Remote Node Software Versions Supported in this Release	14
1.10.2 Remote Node Software Versions with Reduced Capability	15
1.11 Installation Requirements	15
1.11.1 Package Installation Requirements:	15
1.11.2 Software and Firmware Requirements	15
1.12 Changes for this Release	16
1.12.1 Changes to Industry Standards Compliance	16
1.13 Product Constraints	16
1.13.1 FastFabric Toolset Product Constraints	16
1.13.2 Fabric Manager	17
1.14 Product Limitations	17
1.15 Other Information	17
1.15.1 FastFabric Toolset Information	17
1.15.2 Fabric Manager Information	17
1.15.3 Verbs Performance	18
1.16 Documentation	18
2.0 System Issues for Release 7.4.0.0.21	19
2.1 Introduction	19
2.2 Resolved Issues in this Release	19
2.3 Known Issues	20





Tables

1-1 Operating Environments Supported	11
1-2 CPU Model of Linux Kernel	11
1-3 NVIDIA's CUDA Tested with OFED+	12
1-4 MPI Compilers	13
1-5 MVAPICH, MVAPICH2 and Open MPI	13
1-6 Hardware Supported	14
1-7 Changes to Industry Standards Compliance	16
1-8 Related Documentation for this Release	18
2-1 Resolved Issues	19
2-2 Open Issues	20





1.0 Overview of the Release

1.1 Introduction

These Release Notes provide a brief overview of the changes introduced into the Intel® True Scale Fabric Suite Software (IFS) software by this release. This release notes document includes only the IFS software and must be used in conjunction with the Intel® *OFED+ Host Software Release Notes* for a complete package. References to more detailed information are provided where necessary. The information contained in this document is intended for supplemental use only; it should be used in conjunction with the documentation provided for each component.

These Release Notes list the new features of the release, as well as the system issues that were closed in the development of Release 7.4.0.0.21.

1.2 Audience

The information provided in this document is intended for installers, software support engineers, and service personnel.

1.3 If You Need Help

If you need assistance while working with the True Scale Fabric Suite Software, contact your Intel approved reseller or Intel® True Scale Technical Support:

- By E-mail:
ibsupport@intel.com
- On the Support tab at website:
<http://www.intel.com/truescale>

For OEM-specific server platforms supported by this release, contact your OEM.

1.4 New Features and Enhancements

This section list the new features and enhancements for Release 7.4.0.0.21, as well as the two previous releases.

1.4.1 Release 7.4.0.0.21 Enhancements

- Added support for
 - RHEL 7.1
 - CentOS 7.1
 - Scientific Linux 7.1
 - SLES12
 - OFED-3.12-1



- Lustre 2.7
- IEEL 2.2
- KVM
- MVAPICH2 2.0.1

1.4.2 Release 7.3.1.0.12 Enhancements

- Added support for
 - RHEL 6.6
 - CentOS 6.6 and 7.0
 - SLES 6.6 and 7.0



1.5 Operating Environments Supported

The Release 7.4.0.0.21 version of IFS allows for the Operating Systems listed in [Table 1-1](#).

Table 1-1. Operating Environments Supported

Operating System	Update/SP	Version
RHEL 6 X86_64 (AMD Opteron and Intel EM64T)	Update 4	2.6.32-358.el6.x86_64
	Update 5	2.6.32-431.el6.x86_64
	Update 6	2.6.32-504.el6.x86_64
RHEL 7 X86_64 (AMD Opteron and Intel EM64T)		3.10.0-123.el7.x86_64
RHEL 7.1 X86_64 (AMD Opteron and Intel EM64T)	Update 1	3.10.0-229.el7.x86_64
SLES 11 X86_64 (AMD Opteron and Intel EM64T)	SP2	3.0.13-0.27-default
	SP3	3.0.76-0.11-default
SLES 12 X86_64 (AMD Opteron and Intel EM64T)		3.12.28-4.6.x86_64
Community Enterprise Operating System (CentOS) X86_64 (AMD Opteron and Intel EM64T) (6.x)	Update 6.4	2.6.32-358.el6.x86_64
	Update 6.5	2.6.32-431.el6.x86_64
	Update 6.6	2.6.32-504.el6.x86_64
Community Enterprise Operating System (CentOS) X86_64 (AMD Opteron and Intel EM64T) (7.0)		3.10.0-123.el7.x86_64
Community Enterprise Operating System (CentOS) X86_64 (AMD Opteron and Intel EM64T) (7.1)	Update 1	3.10.0-229.el7.x86_64
Scientific Linux X86_64 (6.x)	Update 6.4	2.6.32-358.el6.x86_64
	Update 6.5	2.6.32-431.el6.x86_64
	Update 6.6	2.6.32-504.el6.x86_64
Scientific Linux X86_64 (7.0)		3.10.0-123.el7.x86_64
Scientific Linux X86_64 (7.1)	Update 1	3.10.0-229.el7.x86_64
StackIQ Cluster Manager (Rocks+) HPC 3.1	RHEL 6.4	2.6.32-358.el6.x86_64
	CentOS 6.4	2.6.32-358.el6.x86_64
StackIQ Cluster Manager (Rocks+) HPC 3.2.1	RHEL 6.5	2.6.32-431.el6.x86_64
	CentOS 6.5	2.6.32-431.el6.x86_64
Platform HPC-4.1.1.1	RHEL 6.4	2.6.32-358.el6.x86_64
	RHEL 6.5	2.6.32-431.el6.x86_64

CPU model of Linux kernel can be identified by `uname -m` and `/proc/cpuinfo` shown in [Table 1-2](#).

Table 1-2. CPU Model of Linux Kernel

Model	uname	/proc/cpuinfo
EM64T	x86_64	Intel CPUs
Opteron*	x86_64	AMD CPUs

Note: Other combinations (such as i586 uname) are not currently supported.



1.6 Qualified Parallel File Systems

Lustre and IBM* General Parallel File System (GPFS) listed below have been tested for use with this release of the Intel® OFED+ host software using the operating systems listed below:

- Lustre* 2.7
 - RHEL 6.6 (both server and client)
 - RHEL 7.0 (client)
 - SLES11 SP3 (client)
- IBM GPFS 3.5.0.24
 - SLES11 SP3
 - SLES12
 - RHEL 6.5
- IBM GPFS 4.1.0.7
 - RHEL 6.6
 - RHEL 7.0

Refer to the *Intel® OFED+ Host Software User Guide* for the latest configuration recommendations for optimizing Lustre and GPFS performance with Intel® True Scale Fabric.

1.7 Intel Interface for NVIDIA* GPUs

NVIDIA's CUDA parallel computing platform and programming models have been tested for use with this release of the Intel® OFED+ host software using the operating systems listed in [Table 1-3](#):

Table 1-3. NVIDIA's CUDA Tested with IFS

Distributions	CUDA 7
RHEL 6.4	X
RHEL 6.5	X
RHEL 6.6	X
RHEL 7.0	X
SLES 12	X

1.8 Compilers Supported

1.8.1 MPI

This release supports the following MPI implementations:



Table 1-4. MPI Compilers

MPI Implementation	Runs Over	Compiled With
Open MPI 1.8.4	PSM Verbs	GCC, Intel, PGI
MVAPICH version 1.2.0	PSM Verbs	GCC, Intel, PGI
MVAPICH2 version 2.0.1	PSM Verbs	GCC, Intel, PGI
Platform MPI 9.1	PSM Verbs	GCC (default)
Intel MPI version 5.0.2	TMI/PSM, uDAPL	Icc 15.0.0

1.8.2 MVAPICH, MVAPICH2 and Open MPI

MVAPICH, MVAPICH2 and Open MPI have been compiled for PSM to support the following versions of the compilers:

Table 1-5. MVAPICH, MVAPICH2 and Open MPI

Compiler name	Distro	Compiler Version
(GNU) gcc	RHEL6	gcc (GCC) 4.4.4 20100726 (Red Hat 4.4.4-13)
(GNU) gcc	RHEL7	gcc (GCC) 4.8.2 20140120 (Red Hat 4.8.2-16)
(GNU) gcc	SLES11	gcc (SUSE Linux) 4.3.2 [gcc-4_3-branch revision 141291]
(PGI) pgcc	RHEL6	pgcc 10.5-0 64-bit target on x86-64 Linux -tp nehalem-64
(PGI) pgcc	RHEL7	pgcc 14.4-0 64-bit target on x86-64 Linux -tp sandybridge
(PGI) pgcc	SLES11	pgcc 10.5-0 64-bit target on x86-64 Linux -tp nehalem-64
(Intel) icc	RHEL6	icc (ICC) 12.0.4 20110427
(Intel) icc	RHEL7	Version 14.0.2.144 Build 20140120
(Intel) icc	SLES11	icc (ICC) 12.0.4 20110427



1.9 Hardware Supported

Table 1-6 list the hardware supported in this release.

Table 1-6. Hardware Supported

HCA's
QLE7340
QLE7342
QME7342
QME7362
QMH7342
MHQH29-*
MHQH19-*
MHQH19B-XTR
MHQH29B-XTR
MHQH29B-XSR
MCX354A-QCAT
MCX353A-QCAT
NC543i (HP SL390 G7 in-built InfiniBand Host Channel Adapter)
CX-3 LOM down QDR
46M2199
46M2203

1.10 Software Supported

1.10.1 Remote Node Software Versions Supported in this Release

The Intel® True Scale Fabric Suite FastFabric management node can manage nodes with the following software:

- Host with FastFabric for OFED Enablement Tools 4.2 or later

Note:

While the Intel® True Scale Fabric Suite FastFabric Management Node requires Intel® OFED+ Host Software 1.5.3 or later to run Intel® True Scale Fabric Suite FastFabric 7.2, Intel® FastFabric can manage cluster nodes running Intel® OFED+ Host Software 1.2.5 or Intel® OFED+ Host Software 1.3, OFED 1.4 or OFED 1.5, and Intel® IB Tools 4.2 or later.

- Intel® Internally Managed 9000 series Switches with 4.1 or later firmware
- Intel® Externally Managed 9024FC Switches with 4.1 or later firmware
- Intel® Internally Managed 12000 series Switches with 5.0 or later firmware
- Intel® Externally Managed 12200 Switches with 5.0 or later firmware
- Intel® 12100 Switches with 5.0 or later firmware



The Intel® True Scale Fabric Suite Fabric Manager can manage nodes with the following software:

- Host with Intel® OFED+ Host Software 1.2 or later
- Intel® Internally Managed 9000 series Switches with 4.1 or later firmware
- Intel® Externally Managed 9024FC Switches with 4.1 or later firmware
- Intel® Internally Managed 12000 series Switches with 5.0 or later firmware
- Intel® Externally Managed 12200 Switches with 5.0 or later firmware
- Intel® 12100 Switches with 5.0 or later firmware

1.10.2 Remote Node Software Versions with Reduced Capability

The Intel® True Scale Fabric Suite FastFabric can manage nodes with the following software:

- Nodes running third-party IB Stacks
- OFED nodes without the Intel® IB Tools installed
- Third-party IB Switches

The Intel® True Scale Fabric Suite Fabric Manager can manage nodes with the following software:

- Nodes running third-party IB Stacks
- OFED Nodes with Intel® OFED+ 1.2 or earlier
- Third-party IB Switches

1.11 Installation Requirements

The following sections list any special or release-specific installation requirements for this release.

1.11.1 Package Installation Requirements:

Intel® True Scale Fabric Suite Software (IFS) package should be installed on the head node and Intel® OFED+ Host Software package should be installed on all other nodes except the head node.

When using Intel® True Scale Fabric Suite FastFabric toolset to install other nodes, `IntelIB-Basic.DISTRO.VERSION.tgz` should be downloaded. This file is specified by default in `fastfabric.conf` through the `FF_PRODUCT` and `FF_PRODUCT_VERSION` parameters and is used to install all other nodes.

1.11.2 Software and Firmware Requirements

All IFS software on a given node must be at the same release level. The Intel® OFED+ Host Software is installed as part of the package. Prior to installing the Intel® True Scale Fabric Suite Software release, any versions of the SilverStorm IB stack (and any other vendor's IB stack) must be uninstalled.

Note: When using the Intel® True Scale Fabric Suite (IFS) Software installation wrapper, the wrapper install enforces this requirement.



1.12 Changes for this Release

The following sections describe the changes that have been made to the Intel® True Scale Fabric Suite Software package between versions 7.3.1.0.12 and 7.4.0.0.21.

For detailed information about any of the previous releases listed, refer to the Release Notes for the specific version.

1.12.1 Changes to Industry Standards Compliance

Table 1-7 shows each Basic OFED version that is supported and the Intel® OFED+ Releases that include each

Table 1-7. Changes to Industry Standards Compliance

Basic OFED Software Package Supported	Intel® OFED+ Host Software Package
Version 1.5.4.1	Versions 7.2.1.1.22, 7.2.2.0.8
Version 3.5-2	Version 7.3.0.0.26, 7.3.1.0.12
Version 3-12.1	Version 7.4.0.0.21

1.13 Product Constraints

The following is a list of product constraints for this release:

1.13.1 FastFabric Toolset Product Constraints

- The product supports a default HCAs configuration of Port 1 on the HCAs as the active port and Port 2 on the HCAs as the standby port. The following FastFabric operations may not work correctly with a HCA configuration of 2 active ports, or a configuration which has Port 2 of the HCAs as the active port:
 - Host Setup using FastFabric->Configure IPoIB IP Address
 - Host Admin using FastFabric->Verify Hosts ping via IPoIB
- All commands that are to be run on the chassis (Intel® and SilverStorm switches and gateways) should be invoked with the `-noprompt` option to avoid command execution time-out. This applies both to chassis commands invoked from the FastFabric TUI (Run a command on all chassis), as well as those invoked from the command line using the FastFabric `cmdall` command.



1.13.2 Fabric Manager

- Virtual Fabrics in this release leverage IBTA standard Partitioning Features. However, some OFED applications have limitations with regard to partitioning.
 - FastFabric – FastFabric tools are fully supported. Intel recommends that FastFabric be installed on an admin node which is a Member in the Default Partition (0xffff).
 - IPoIB – Intel recommends configuring Virtual Fabrics so that the first PKey on the port is the one desired for IPoIB on the host. Refer to the Configuration section of the *Intel® True Scale Fabric Software Installation Guide* for detailed information.
 - mvapich1 – To control the PKey, the `VIODEV_DEFAULT_PKEY` must be exported at job startup. Refer to the Configuration section of the *Intel® True Scale Fabric Software Installation Guide* for detailed information.
 - Open MPI – To control the PKey, the `OMPI_MCA_btl_openib_ib_pkey` must be exported at job startup. Refer to the Configuration section of the *Intel® True Scale Fabric Software Installation Guide* for detailed information about this feature.
 - mvapich2 – To control the PKey, the `MV2_DEFAULT_PKEY` must be exported at job startup. Refer to the Configuration section of the *Intel® True Scale Fabric Software Installation Guide* for detailed information.

1.14 Product Limitations

There are no product limitations for this release.

1.15 Other Information

The following is a list of need-to-know information for this release:

- If FastFabric is being used, after an upgrade review the `FF_PRODUCT` parameter in `/etc/sysconfig/fastfabric.conf`. This parameter must be adjusted to match value shown in `/etc/sysconfig/fastfabric.conf-sample`.
- The `iba_rfm` command has been deprecated. For a new installation or an upgrade from an earlier release, instances of `iba_rfm` command will be removed. The `iba_top` command should now be used.

1.15.1 FastFabric Toolset Information

The FastFabric Toolset is automatically uninstalled if the base OFED release is uninstalled.

1.15.2 Fabric Manager Information

When there are many changes in the fabric (ISLs, switches going down) it is possible that many loops are no longer viable and the distribution of ISLs in the loops is becoming unbalanced. These changes can cause the loop test utilization to drop. Restarting of loop test will stop all traffic and compute fresh loop routes with balanced distribution of ISLs in loops.



1.15.3 Verbs Performance

Whenever possible, Intel recommends installing at least one True Scale HCA on a PCIe bus connected to the CPU 1 Socket for optimal verbs performance. For details on finding the correct PCIe slot, consult the documentation for your server chassis or motherboard.

1.16 Documentation

Table 1 lists the end-user documentation for the current release. All related documentation is available on the Intel download site.

Documentation for Intel® Partners is available at the vendors website.

Table 1-8. Related Documentation for this Release

Document Title
Intel® Hardware Documents
<i>Intel® True Scale 12000 Hardware Installation Guide</i>
<i>Intel® True Scale 12000 Users Guide</i>
<i>Intel® True Scale 12000 CLI Reference Guide</i>
<i>Intel® Adapter Hardware Installation Guide</i>
Intel® OFED+ Documents
<i>Intel® True Scale Fabric Software Installation Guide</i>
<i>Intel® OFED+ Host Software User Guide</i>
<i>Intel® OFED+ Host Software Release Notes</i>
Intel® IFS Documents
<i>Intel® True Scale Fabric Suite FastFabric User Guide</i>
<i>Intel® True Scale Fabric Suite Fabric Manager User Guide</i>
<i>Intel® True Scale Fabric Suite FastFabric Command Line Interface Reference Guide</i>
<i>Intel® True Scale Fabric Suite Software Release Notes</i>
Intel® Fabric Viewer Documents
<i>Intel® True Scale Fabric Suite Fabric Viewer Online Help</i>
<i>Intel® True Scale Fabric Suite Fabric Viewer Release Notes</i>



2.0 System Issues for Release 7.4.0.0.21

2.1 Introduction

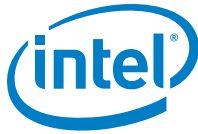
This section provides a list of the resolved and open issues for this release of the True Scale Fabric Suite Software. The list of open issues includes a description and workaround.

2.2 Resolved Issues in this Release

Table 2-1 is a list of issues that are resolved in this and the previous two releases.

Table 2-1. Resolved Issues

Product/ Component	Release	Description
IFS/ FastFabric	7.3.0.0.26	Trying to rebuild mvapich-psm and mvapich-verb using FastFabric with PGI 11.7, it fails no longer gives error messages.



2.3 Known Issues

Table 2-2 lists the open issues for this release.

Table 2-2. Open Issues

Product/Component	Description	Workaround
IFS/ Fabric Manager	When the <code>LogFile</code> parameter is in use, the Fabric Manager outputs to the named file instead of <code>syslog</code> . If a high <code>LogLevel</code> is selected, the log file can grow quickly and consume too much disk space.	Limit use of <code>LogFile</code> to short duration debug type operations and use <code>syslog</code> for normal Fabric Manager operation.
IFS/ Rolls/Kits	<p>If the IFS kit is already installed, then running the <code>updatenode</code> command on the Installer and/or compute node(<code>updatenode <headnode/compuetnode></code> command) emits errors similar to the following :</p> <pre>compute000: Error: Package: opensm-devel- 3.3.13-1.x86_64 (installed) compute000:Requires: opensm-libs = 3.3.13-1 compute000:Removing: opensm-libs-3.3.13- 1.x86_64 (installed) compute000: opensm-libs = 3.3.13-1 compute000: Updated By: opensm-libs-3.3.15- 1.el6.x86_64 (xCAT- rhels6.4-path0)</pre>	These errors may be safely ignored.
IFS	<p>If the <code>libedit</code> rpm is not present on a host, it should be installed prior to installing IFS. If the <code>libedit</code> libraries are not installed, the following error is displayed. Additionally, commands such as <code>iba_manage_switch</code> and <code>iba_switch_admin</code> would also fail with an error message similar to:</p> <pre>#/opt/iba/ib_tools/L8simlnx /opt/iba/ib_tools/L8simlnx: error while loading shared libraries: libedit.so.0: cannot open shared object file: No such file or directory</pre> <p>If the <code>libedit</code> rpm is not installed prior to the IFS installation, the capture operation would fail. However, installing <code>libedit</code> rpm would fix the issue. A reinstall of IFS is not needed.</p>	Install <code>libedit</code> rpm if not already present on a host.

